



# ICAO ENGINE EXHAUST EMISSIONS DATA SHEET

## SUBSONIC ENGINES

ENGINE IDENTIFICATION: GE90-115B BYPASS RATIO: 7.1  
 UNIQUE ID NUMBER: 01P21GE217 PRESSURE RATIO ( $\pi_{co}$ ): 42.9  
 COMBUSTOR: DAC  
 ENGINE TYPE: TF RATED THRUST ( $F_{oo}$ ) (kN): 513.9

### REGULATORY DATA

| CHARACTERISTIC VALUE:                        | HC   | CO   | NO <sub>x</sub> | SMOKE NUMBER |
|--|------|------|-----------------|--------------|
| D <sub>p</sub> /F <sub>oo</sub> (g/kN) or SN | 5.0  | 42.2 | 73.0            | 4.0          |
| AS % OF ORIGINAL LIMIT                       | 25.4 | 35.8 | 58.0            | 26.3         |
| AS % OF CAEP/2 LIMIT (NO <sub>x</sub> )      |      |      | 72.5            |              |
| AS % OF CAEP/4 LIMIT (NO <sub>x</sub> )      |      |      | 78.6            |              |
| AS % OF CAEP/6 LIMIT (NO <sub>x</sub> )      |      |      | 86.0            |              |
| AS % OF CAEP/8 LIMIT (NO <sub>x</sub> )      |      |      | 96.1            |              |

For non-volatile particulate matter (nvPM) emissions, please refer to the ICAO Engine nvPM Emissions Data Sheet.

### DATA STATUS

- PRE-REGULATION  
 x CERTIFICATION  
 - REVISED (SEE REMARKS)

### TEST ENGINE STATUS

x NEWLY MANUFACTURED ENGINES  
 - DEDICATED ENGINES TO PRODUCTION STANDARD  
 - OTHER (SEE REMARKS)

### EMISSIONS STATUS

x DATA CORRECTED TO REFERENCE  
 (ANNEX 16 VOLUME II)

### CURRENT ENGINE STATUS

(IN PRODUCTION, IN SERVICE UNLESS OTHERWISE NOTED)  
 - OUT OF PRODUCTION (DATE: - )  
 - OUT OF SERVICE (DATE: - )

### MEASURED DATA

| MODE   | POWER SETTING (%F <sub>oo</sub> ) | TIME (minutes) | FUEL FLOW (kg/s) | EMISSIONS INDICES (g/kg) |             |                 | SMOKE NUMBER |
|--|-----------------------------------|----------------|------------------|--------------------------|-------------|-----------------|--------------|
|  |                                   |                |                  | HC                       | CO          | NO <sub>x</sub> |              |
| TAKE-OFF   | 100                               | 0.7            | 4.600            | 0.03                     | 0.13        | 51.07           | 3.4          |
| CLIMB OUT  | 85                                | 2.2            | 3.566            | 0.02                     | 0.14        | 36.44           | 2.2          |
| APPROACH   | 30                                | 4.0            | 1.073            | 0.05                     | 2.16        | 16.17           | 1.6          |
| IDLE   | 7                                 | 26.0           | 0.341            | 3.64                     | 34.58       | 5.51            | 1.3          |
| LTO TOTAL FUEL (kg) or EMISSIONS (g)                               |                                   |                | 1453             | 1964                     | 19039       | 34114           | -            |
| NUMBER OF ENGINES  |                                   |                |                  | 2                        | 2           | 2               | 2            |
| NUMBER OF TESTS  |                                   |                |                  | 6                        | 6           | 6               | 6            |
| AVERAGE D <sub>p</sub> /F <sub>oo</sub> (g/kN) or AVERAGE SN (MAX) |                                   |                |                  | 3.8                      | 37.1        | 66.4            | 3.4          |
| SIGMA (D <sub>p</sub> /F <sub>oo</sub> in g/kN, or SN)             |                                   |                |                  | 0.3                      | 1.3         | 1.1             | 1.6          |
| RANGE (D <sub>p</sub> /F <sub>oo</sub> in g/kN, or SN)             |                                   |                |                  | 3.51-4.11                | 35.36-38.56 | 64.6-67.83      | 0.71-4.54    |

### ACCESSORY LOADS

POWER EXTRACTION 0 (kW) AT All POWER SETTINGS  
 STAGE BLEED 0 (% CORE FLOW) AT All POWER SETTINGS

### ATMOSPHERIC CONDITIONS

|                      |               |
|----------------------|---------------|
| BAROMETER (kPa)      | 97.1-98.3     |
| TEMPERATURE (K)      | 290.7-298.7   |
| ABS HUMIDITY (kg/kg) | 0.0051-0.0094 |

### FUEL

|          |           |
|----------|-----------|
| SPEC     | Jet A     |
| H/C      | 1.9-1.96  |
| AROM (%) | 11.9-16.4 |

MANUFACTURER: General Electric Company  
 TEST ORGANIZATION: General Electric Company  
 TEST LOCATION: PTO, Ohio  
 TEST DATES: 23/11/2003-26/05/2016

### NO<sub>x</sub> REGULATION PARAGRAPH

|   |                   |
|---|-------------------|
|   | 2.3.2 c) (CAEP/4) |
|   | 2.3.2 d) (CAEP/6) |
| x | 2.3.2 e) (CAEP/8) |

### REMARKS

- Engine S/N 906-107/01 and ESN 901-007/01, GE Report R2019EA459
- Engine S/N 906-107/01 smoke numbers corrected for fuel aromatics volume, GE Report R2003AE462
- Smoke Number for each LTO mode is average of max SN for test points around that power setting
- Average SN (MAX) is the average of the maximum smoke number point from each run.
- Certification in accordance with Part III, Chapter 2, of Amendment 9 of ICAO Annex 16 Vol. II.

Compliance with Fuel Venting requirements: x ('x' if complies, 'PR' if pre-regulation, '-' if information is not available)